

# INSTITUTIONAL CALLER APPLICATION

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## ABSTRACT

In today's world, Smartphones have grown an overpowering part of everyone's living. With these smartphones, human life transformed for the better. "Institutional Caller Application" is our college management application that is aimed at handling most of the interactions between the staff of the institution. The application will give to access the person's contact number and email-id makes to contact them which is also provided by our application. It also indicated a great interest of users in having context information visualized in the phonebook. Our application is not meant for public use, and only authorized persons can make use of it. An only authorized users can use this application by downloading the application. The competent authorities who have permission to access the database can add, delete or modify the staff information of the departments of the institution. The authorized user can search the staff information by specifying the contact number, name of the department office/official, designations, and email-id of the particular department of the institution. This model application can make a call and send a message to the staff specified by the user. Sometimes it can also be able to call or message many people by selecting many persons using the search option. The purpose of this application is to make improvements in the education system and institutional businesses. This application helps in adding movement and computerization to maintain the institutional information. The existing system uses a website for finding a phone number to make an action like call and message to other respective members. It is a very time-consuming process. The android application simplifies this process by providing instantaneous notifications to the corresponding staff. This application makes this task easier, faster, and more secure.

**Keywords:** *Phone Book, Staff Information, Android Application, Flutter, Google Firebase, Message.*

## 1. INTRODUCTION

With the advance in time and technology, there is a need for faster dissemination of information. The increasing advantages of the automated system now are at the highest position thus many manual processes are automated. Since the automated system is demanded nowadays, educational institutions like colleges need their manual system to function on mobile computing systems. As we are going to develop a mobile application that contains the repository of an academic institution and department office details. If the authority needs any information about the institution, he/she can get it by specifying a name, department, designation, picture, email, or contact number. A user can view the details by just clicking the department with a name. If the user searches a particular department in the institution, our App will give the list of all names in a particular department within which the user can search it easily. Moreover, it will give to access the person's contact number and email-id makes to contact them which is also provided by our APP. It will consider the contact number of the authority as a primary key in the database, all actions like calls and messages are done with the help of

the primary key. It will also perform searching by just using the name of the users in the department office or their institution. The other provision of the APP is that the user can identify the person by giving the designation category also. Our APP is not meant for public use, and only authorized persons can make use of it. Updating the institution information is carried out only by the higher officials, we will provide the source database to them who can access it by giving their username and password. Normally the search operation is time-consuming, and it is easy in our APP. In short, by using our APP the user can find out people by selecting many persons using the search option. With the popularization of smartphones, the Android platform has been admired by more and more people, for its features of open-source, convenience, etc. the application software development in Android mobile phones is becoming more and more important [1.2]. Data processing is one of the important parts of application software development. Data processing can hardly do without database technology. But because of the limit of hardware conditions for the mobile itself, a mobile phone cannot install and run

large DBMS like most PC. Therefore, realizing the database application technology in the Android system environment has become one of the important research subjects in mobile application software development.

A phone directory commonly called a phone book, telephone address book, or phone book, is a listing of telephone subscribers in a geographical area or subscribers to services provided by the organization that publishes the directory in the mobile app. Its purpose is to allow the telephone number and mail of a subscriber identified by name and department to be found the staff-Information of any department office/official around Institution by having a few information about them. An only authorized users can use this application by downloading the apk. file. The competent authorities who have permission to access the database can add, delete or modify the staff information of the departments of the institution. The authorized user can search the staff information by specifying the contact number, name of the department office/official, designations, and email-id of the particular department of the institution. This model (Android-based) application can make a call and send a message to the staff specified by the user. Sometimes it can also be able to call or message many. At the present, we use Google Firebase. Google Firebase is a backend application development software that enables developers to develop iOS, Android, Desktop, Linux, and Web apps[3,4] It provides tools for tracking analytics, reporting and fixing app crashes, and creating marketing and product experiment. The Authentication feature of the Firebase is for authenticating the user to the application. This makes it easy for developers to build secure authentication systems and enhances users' sign-in and onboarding experience. This feature offers a complete identity solution, supporting e-mail and password accounts, phone auth, and Google, Facebook, GitHub, Twitter login, and more. The Cloud Fire Store is used for storing staff information. First, we need to add the department to the database, and then we can add the staff present in the department into the database. It is a kind of lightweight database system. Because of little support for the system and external demand, it can be easily embedded into hardware equipment. Less memory support and data reading/writing ability make it an Android mobile system good local data management tool. Using the flutter framework, the application can be used on both Android and IOS platforms[5,6].

We can also run the application on websites which increases the scope of the application to be developed as a web application.

## **2. PROPOSED METHODOLOGY**

In the proposed system, we have planned to add the following features and updates:

- Database Updating – Adding all the staff members' information, based on their department, into the Firebase Database.
- UI Designing – Changing the application's user interface to be easier for the application users to interact with.
- Admin login – Adding the options of Add Staff, Edit Staff, and Delete Staff to the administrator login.
- Upload status – Option to add the current status of the staff members on their profile so that others may know their status and contact them.

## **3. OBJECTIVE**

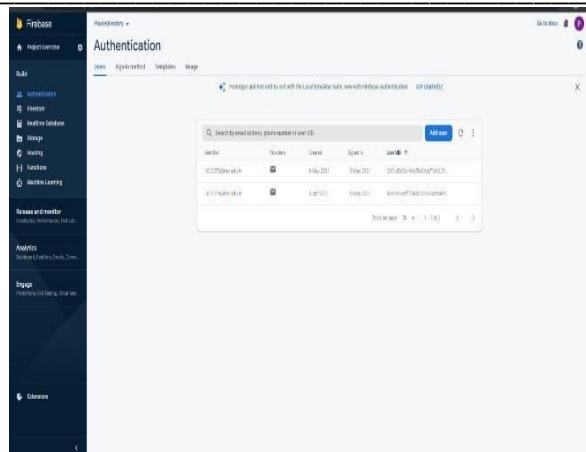
The main objective of our project is to design a phone directory, especially for educational institutions. This system is developed to solve the general need of the user while using the phone directory book and provides a lot of facilities to their users. The system is very user-friendly, and it is anticipated that administrators and staff members will easily access the system's functions.

## **4. SOFTWARE REQUIREMENTS**

- Android Studio 4.2
- Google Firebase
- Android Virtual Device
- Windows 11/10/8

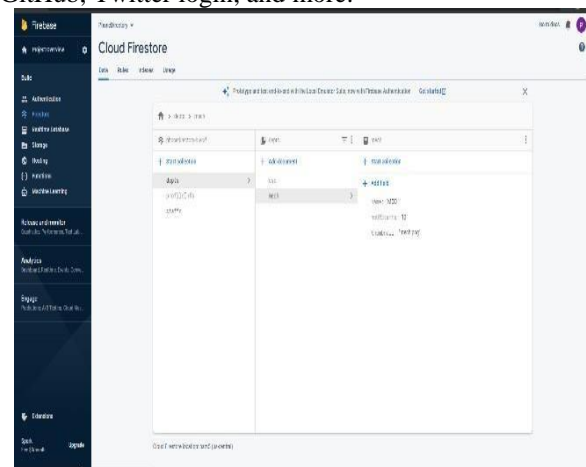
## **5. DATABASE STRUCTURE**

Google Firebase is a Google-backend application development software that enables developers to develop iOS, Android, Desktop, and Web apps. It provides tools for tracking analytics, reporting and fixing app crashes, and creating marketing and product experiment.



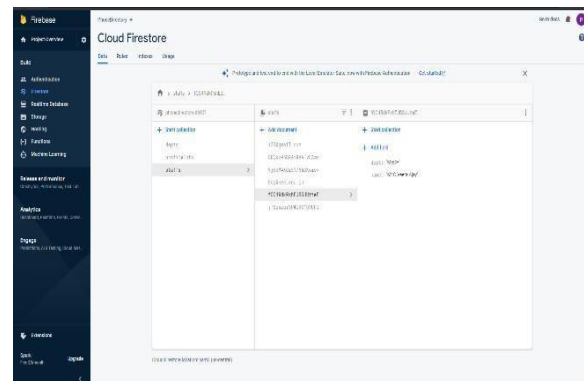
**Figure 1. Authentication**

In Figure 1 the Authentication feature of the Firebase is for authenticating the user to the application. Firebase Authentication makes it easy for programmers to build secure authentication systems and enhances the sign-in and onboarding experience for users. This feature offers a complete identity solution, supporting e-mail and password accounts, phone auth, and Google, Facebook, GitHub, Twitter login, and more.



**Figure 2. Cloud Fire Store**

In Figure 2 the Cloud Fire Store is used for storing staff information. First, we need to add the department to the database, and then we can add the staff present in the department into the database.



**Figure 3. Real-Time Database**

In Figure 3, the Firebase Realtime Database is a cloud-hosted NoSQL database that enables data to be stored and synced between users in real-time. The data is synced across all clients and is still available even when the app goes offline. Firebase Authentication integrates tightly with other Firebase services, and it leverages industry standards like OAuth 2.0 and OpenID Connect to be easily integrated with your custom backend. Firebase Authentication provides backend services, easy-to-use, and ready-made libraries to authenticate users to your app.

Normally, it would take you months to set up your authentication system. And even after that, you would need to keep a dedicated team to maintain that system. But if you use Firebase, you can set up the entire system in under ten lines of code that will handle everything, including the complex operations. Using Firebase Authentication, one can build secure authentication systems easier while improving end-users' sign-in and onboarding experience. Firebase Authentication is built by those who created Google Sign in, smart lock. Cloud Firestore is a database for mobile, web, and server development that is flexible, and scalable. Like Firebase Realtime Database, it keeps your data in sync across client apps through real-time service. It offers offline support for mobile applications and web applications so you can build responsive apps that work regardless of network latency or slow internet connectivity. Cloud Firestore also offers seamless integration with other Firebase and Google Cloud products, including Cloud Functions.

## 6. MODULES

- Login
- Registration
- Dashboard
- Add Staff
- Modify Staff Information
- Search Staffs
- Staff profile page

## 7. MODULES DESCRIPTION

**Registration-**This module is for registering a new user to the application. If you are new to the application, you can register your identity by entering your name, email address, and password. Once you register your identity and click the Register button, you will be redirected to the login page. The credentials you have entered will be saved to the firebase database asynchronously. There will be no registration for the admin users.

**Login-**Once you have successfully registered your profile, you can log in to the application using this page. You should enter the e-mail id and password you have used on the registration screen to log in to the application. We have added the authentication using the firebase authentication. Once you click the Login button, the e-mail id and the password you have entered on the login page will be checked with the list of e-mail ids and passwords in the firebase database. If both get matched in a record, then your login will be successful. For Admin login, the user id and password will be unique for each department, as it is only accessible for the department HODs'.

### Dashboard

After successful login, it redirects to the dashboard screen. The Search Staffs button is present on the Dashboard. When you click it, it turns to the SearchStaff page. When you click the side panel, the Log out option is available. For Admin users, the add staff button will also be present on the Dashboard Screen.

**Add Staff-**This module is only available for admin users. The admin users have the option to add new staff members to the application in their respective departments. When you click the add staff button present in the dashboard screen, you will be redirected to this screen. You have to enter the staff name, their department, their phone number, and email-id. Once you have entered and clicked the save button, their details will be added to the database.

**Modify Staff Information-**This option is for authorized users only. When you search and view staff information as an admin user, you will be shown a button as edit info, through which you can modify the information of the selected staff. The information will be modified and updated in the database.

you can search for the staff whose information is needed. Once you click any staff, you will be redirected to their profile page.

**Staff Profile Page-** The contact information of the staff selected will be displayed on this page. The staff's name, phone number, and e-mail id are present on this page. Below given are the features that were present on this page.

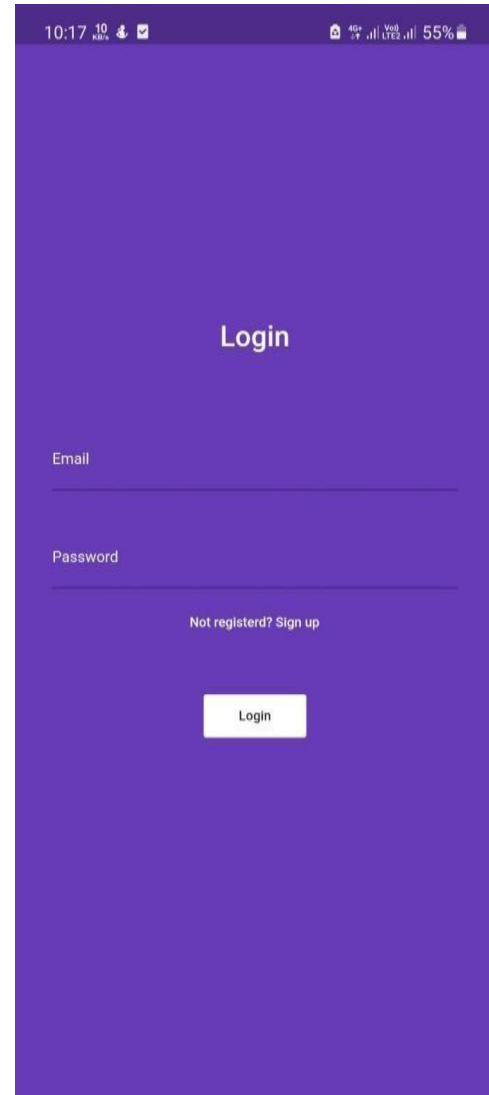
- **Call**  
A phone call is a conversation (or) a request for a connection by telephone.
- **Message**  
Mobile messaging is typically from a mobile phone or mobile device. Examples include SMS texting, Multimedia Message Service (MMS), to a host of the wireless access protocol (WAP) mobile messaging services like WhatsApp, WeChat, Kakao, Kik, Line, etc.
- **E-mail**  
Electronic mail (e-mail or e-mail) is a method of exchanging messages ("mail") between people using electronic devices. In this module, we have included the facility of sending mail to staff members. We store respective mail addresses in the database.

## 8. Application Testing



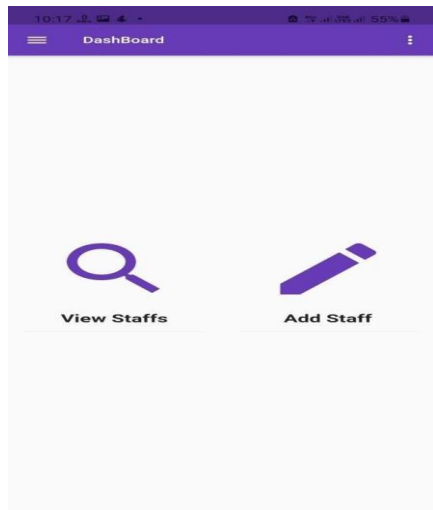
**Figure 4. Registration Page**

Figure 4 shows the mobile screen shot where in you can register your identity by entering your name, e-mail address, and password. Once you register your identity and click the Register button, you will be redirected to the login page. The credentials you have entered will be saved to the firebase database asynchronously. There will be no registration for the admin users.



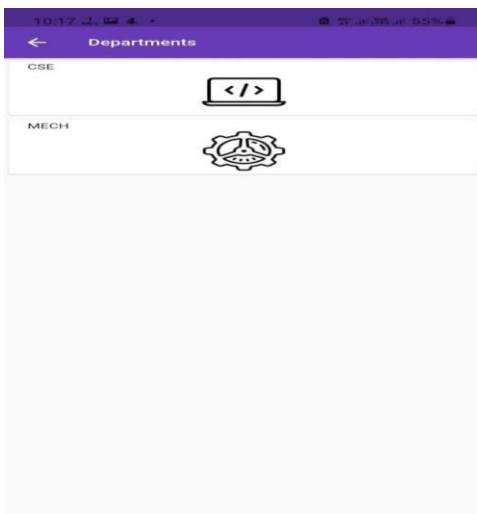
**Figure 5. Login Page**

Once you have successfully registered your profile you can log in to the application using this page(Figure 5). You should enter the e-mail id and password you have used on the registration screen to log in to the application. We have added the authentication using the firebase authentication. Once you click the Login button, the e-mail id and the password you have entered on the login page will be checked with the list of e-mail ids and passwords in the firebase database. If both get matched in a record, then your login will be successful.

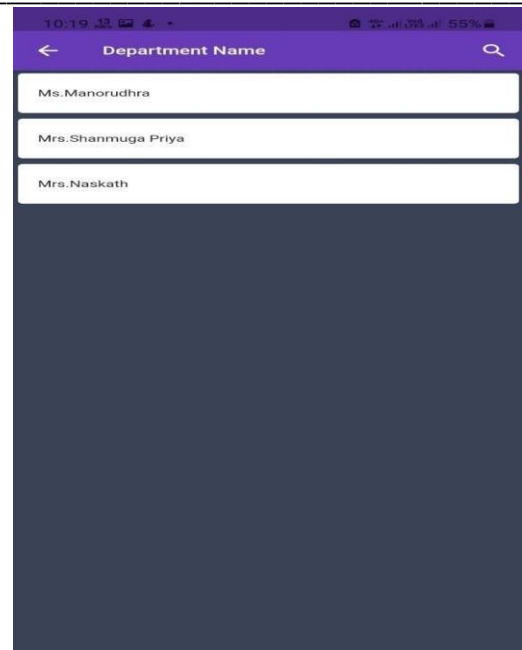


**Figure 6. Dashboard Screen**

After successful login, as shown in figure 6 it redirects to the dashboard screen. The Search Staffs button is present on the Dashboard. When you click it, it redirects to the Search Staff page. When you click the side panel, the Log out option is available. For Admin users, the add staff button will also be present in the Dashboard Screen.

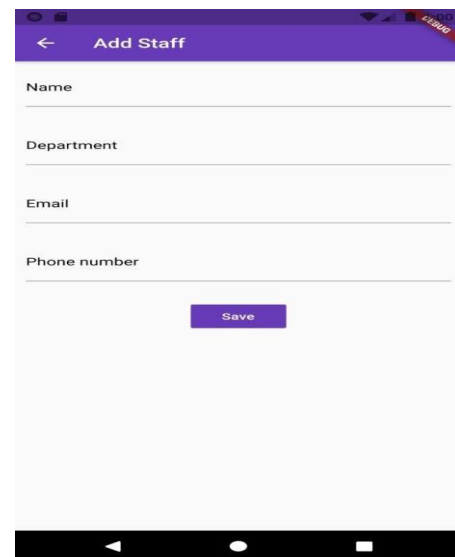


**Figure 7. Departments**



**Figure 8. Search Page**

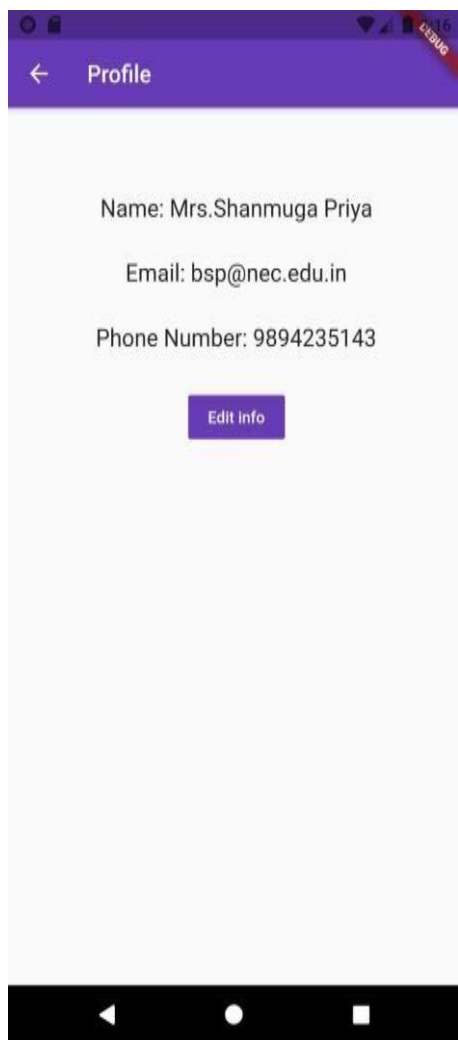
Using the page shown in figure 8, you can search for the staff, and you can view the staff information. The departments are present as a list. You can select the department, and you can search for the staff whose information is needed. Once you click any staff, you will be redirected to their profile page.



**Figure 9. Add Staff**

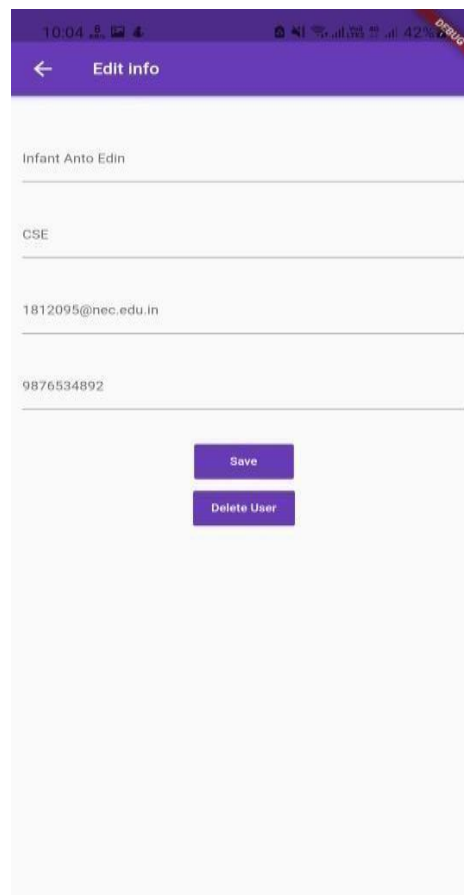


Figure 9 shows how the admin users have the option to add new staff members to the application in their respective departments. When you click the add staff button present in the dashboard screen, you will be redirected to this screen. You have to enter the staff name, their department, their phone number, and email-id. Once you have entered and clicked the save button, their details will be added to the database.



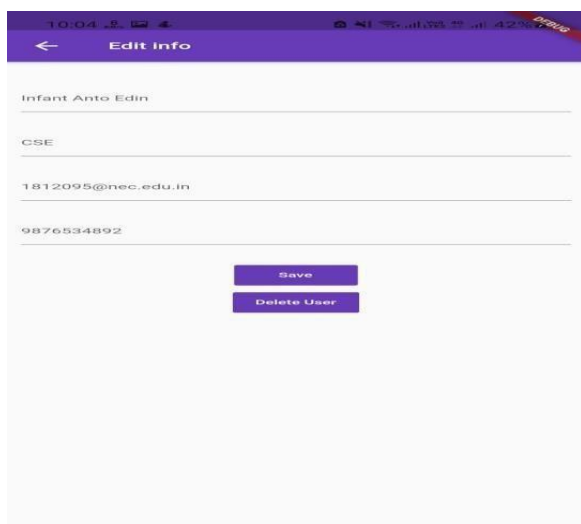
**Figure 10. Profile Page-Admin**

Profile page for the admin in which the contact information of the staff selected will be displayed on the screen as shown in figure 10. The staff's name, phone number, and e-mail id are present on this page. It has a button called edit info in which the admin can modify or edit the information or details of the staff of their respective departments.



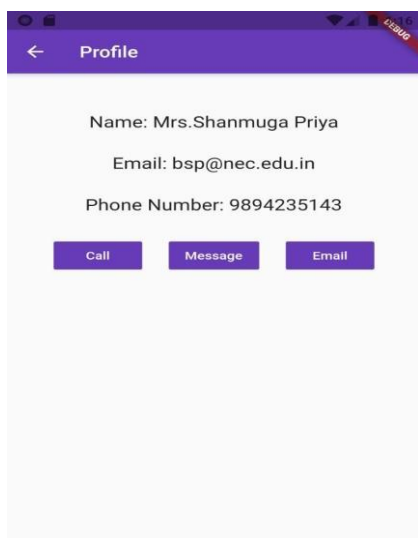
**Figure 11. Edit Staff**

The admin users have the option to edit the staff members' information (Figure 11). They can select the staff for whom the information needs to be edited, and once their profile is viewed, they can select the edit staff option, and they can edit the information which is needed to be edited. Once the corrections have been made, they can click on the Save button. Now the edited details will be reflected in both the application and the database immediately.



**Figure 12. Staff Deletion**

The admin users have the option to delete staff members from the application in their respective departments (Figure 12). They can delete the user by clicking on the Delete User button. Once clicked, the particular user's profile will be deleted from both the application and the database.



**Figure 13. Profile Page-User**

Figure 13 shows how the profile page for the user in which the contact information of the staff selected will be displayed.

## 9. RESULT & CONCLUSION

Thus, we have completed our six modules successfully. Now all staff members can send a message, mail, group message, and mail, search by staff name, department name, and designation.

The era of mobile technology opens the windows to the android app. The websites are vanishing and the smartphones are emerging. It is time to change from conventional websites to apps that have become part of our daily routine. We are introducing "PhoneDirectory using the mobile app", the android application software which would be a college application. It can work as small college management software. This database application technology and realize methods can be extended to mobile phone business management application projects in a general way. The succeeding works to develop a database.

application of this business management system is more and more improve and perfect at present.

## 10. FUTURE WORK

In the upcoming versions of the application, in the future, we had planned to add more and more features through which the system offers reliability, time savings, and easy control. It provides high security and a system that reduces the work and resources required in the traditional process. The proposed system provides a new way of computing and is playing an operation with a responsive and attractive user interface. Thus, on the basis of a literature survey and by analyzing the existing system, we have come to a conclusion that the proposed system will not only aid the automation of the college but will also help to digitize the system and in turn help to deploy resources efficiently.

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